

1 ENVIRONMENTALLY COMPATIBLE  
2 HYDROCARBON BLEND DRILLING FLUID  
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4 A method of formulating and the resulting biodegradable wellbore fluid includes  
5 a first synthetic internal olefin having from 16 to 18 carbon atoms ( $C_{16-18}$  IO), a second  
6 synthetic internal olefin having between 15 to 18 carbon atoms ( $C_{15-18}$  IO), and a third  
7 synthetic internal olefin having 15 to 16 carbon atoms ( $C_{15-16}$  IO). The components of the  
8 wellbore fluid are blended such that the desired characteristics of polycyclic aromatic  
9 hydrocarbon content, toxicity and biodegradability are balance to achieve compliance with  
10 environmental requirements for hydrocarbon based drilling fluids. One such illustrative  
11 embodiment achieves this result by utilizing a formulation in which the first internal  
12 olefin is present in a range of about 45 to about 55 percent by weight of the wellbore fluid  
13 and wherein the second internal olefin is present in range of about 20 to about 30 percent  
14 by weight of the wellbore fluid and wherein the third olefin is present in range of about  
15 20 to about 30 percent by weight of the wellbore fluid. Optionally, the illustrative fluid  
16 can include a  $C_{16}$  alpha olefin ( $C_{16}$  AO). In such instances, the  $C_{16}$  alpha olefin ( $C_{16}$  AO)  
17 is present in the range of about 10 to about 20 percent by weight of the wellbore fluid.  
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